

IN THE CLAIMS:

Please AMEND claims 1, 9, 13, 19, 35, 38, and 45 in accordance with the following:

1. (TWICE AMENDED) A recording medium comprising:

land tracks; and

groove tracks;

wherein

the land tracks and the groove tracks are wobbled, and one of the groove tracks and the land tracks are a first type of tracks,

the wobbles of a first track of the first type of tracks are out of phase with each other in a radial direction,

the wobbles of a second track of the first type of tracks are out of phase in the radial direction, differently from the first track of the first type of tracks,

the wobbles of a first track of the other type of tracks are in phase with each other in the radial direction, and

the wobbles of a second track of the other type of tracks are in phase in the radial direction, differently from the first track of the other type of tracks.

9. (TWICE AMENDED) A recording medium comprising:

land tracks; and

groove tracks;

wherein

the land tracks and the groove tracks are wobbled,

the wobbles of the groove tracks and the land tracks are out of phase with the wobbles of the next other types of tracks in a radial direction, and

the wobbles formed of the land tracks and the groove tracks have a phase difference of π with the wobbles of the next other types of tracks.

13. (TWICE AMENDED) A servo controller in an optical recording and/or reproducing apparatus including a pickup unit for tracking an optical recording medium having wobbled groove and land tracks, wherein one of the groove tracks and the land tracks are a first type of tracks, the servo controller comprising:

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a photo detector to output as two channels a light signal reflected from the optical recording medium in which the wobbles of a first track of the first type of tracks are out of phase with each other in a radial direction, the wobbles of a second tracks of the first type of tracks are out of phase in the radial direction differently from the first tracks of the first type of tracks, the wobbles of a first tracks of the other type of tracks are in phase with each other in the radial direction, and the wobbles of a second tracks of the other type of tracks are in phase in the radial direction differently from the first tracks of the other type of tracks, or the wobbles of the groove tracks and the land tracks are out of phase with the wobbles of the next other types of tracks by π in the radial direction;

a wobble signal detector to detect a wobble signal from at least one of the two channels;

a wobble signal determiner to determine whether one of the tracks, which is currently tracked by the pickup unit, is a groove track or a land track based on the at least one wobble signal, and to provide a determination signal; and

a controller to generate a control signal for controlling a servo for moving the pickup unit using the determination signal and the detected wobble signal.

19. (TWICE AMENDED) A servo controlling method for an optical recording and/or reproducing apparatus including a pickup unit for tracking an optical recording medium having wobbled groove and land tracks, wherein one of the groove tracks and the land tracks are a first type of tracks, the servo controlling method comprising:

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outputting as two channels a light signal reflected from the optical recording medium in which the wobbles of a first track of the first type of tracks are out of phase with each other in a radial direction, the wobbles of a second tracks of the first type of tracks are out of phase in the radial direction differently from the first tracks of the first type of tracks, the wobbles of a first tracks of the other type of tracks are in phase with each other in the radial direction, and the wobbles of a second tracks of the other type of tracks are in phase in the radial direction differently from the first tracks of the other type of tracks, or the wobbles of the groove tracks and the land tracks are out of phase with the wobbles of the next other types of tracks by π in the radial direction;

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detecting a wobble signal from at least one of the two channels;
determining whether one of the tracks which is currently tracked by the pickup unit, is a groove track or a land track based on the at least one wobble signal to provide a determination signal; and
controlling a servo for moving the pickup unit using the determination signal and the detected wobble signal.

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35. (TWICE AMENDED) An optical recording and/or reproducing apparatus including a pickup for tracking an optical recording medium having wobbled groove and land tracks, wherein one of the groove tracks and the land tracks are a first type of tracks, and a servo to move the pickup, comprising:

a photo detector to output two signals in response to a light signal reflected from the optical recording medium in which the wobbles of a first track of the first type of tracks are out of phase with each other in a radial direction, the wobbles of a second tracks of the first type of tracks are out of phase in the radial direction differently from the first tracks of the first type of tracks, the wobbles of a first tracks of the other type of tracks are in phase with each other in the radial direction, and the wobbles of a second tracks of the other type of tracks are in phase in the radial direction differently from the first tracks of the other type of tracks, or the wobbles of the groove tracks and the land tracks are out of phase with the wobbles of the next other types of tracks by π in the radial direction; and

a servo control unit to determine a wobble signal from the two signals, and in response, generate a control signal to move the servo, wherein the servo control unit comprises:

a wobble signal detector to detect the wobble signal from the two signals,
a wobble signal determiner to determine whether one of the tracks, which is currently tracked by the pickup, is a groove track or a land track based on the wobble signal, to generate a determination signal, and

a controller to generate the control signal based upon the wobble signal and the determination signal.

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38. (TWICE AMENDED) An optical recording and/or reproducing apparatus including a pickup for tracking an optical recording medium having wobbled groove and land tracks, wherein one of the groove tracks and the land tracks are a first type of tracks, and a servo to move the pickup, comprising:

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a photo detector to output two signals in each of two channels in response to a light signal reflected from the optical recording medium in which the wobbles of a first track of the first type of tracks are out of phase with each other in a radial direction, the wobbles of a second tracks of the first type of tracks are out of phase in the radial direction differently from the first tracks of the first type of tracks, the wobbles of a first tracks of the other type of tracks are in phase with each other in the radial direction, and the wobbles of a second tracks of the other type of tracks are in phase in the radial direction differently from the first tracks of the other type of tracks, or the wobbles of the groove tracks and the land tracks are out of phase with the wobbles of the next other types of tracks by π in the radial direction; and

a servo control unit to determine at least one wobble signal from at least one of the two channels, respectively, and in response, generate a control signal to move the servo, wherein the servo control unit comprises:

a wobble signal detector to detect the at least one wobble signal from the at least one of the two channels,

a wobble signal determiner to determine whether one of the tracks, which is currently tracked by the pickup, is a groove track or a land track based on the at least one wobble signal, to generate a determination signal, and

a controller to generate the control signal based upon the at least one wobble signal and the determination signal.

45. (TWICE AMENDED) A servo controlling method for an optical recording and/or reproducing apparatus including a pickup for tracking a recording medium having wobbled groove and land tracks, wherein one of the groove tracks and the land tracks are a first type of tracks, the servo controlling method comprising:

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outputting two signals in response to a light signal reflected from the optical recording medium in which the wobbles of a first track of the first type of tracks are out of phase with each other in a radial direction, the wobbles of a second tracks of the first type of tracks are out of phase in the radial direction differently from the first tracks of the first type of tracks, the wobbles of a first tracks of the other type of tracks are in phase with each other in the radial direction, and the wobbles of a second tracks of the other type of tracks are in phase in the radial direction differently from the first tracks of the other type of tracks, or the wobbles of the groove tracks and the land tracks are out of phase with the wobbles of the next other types of tracks by π in the radial direction; and

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determining a wobble signal from two signals, and in response, generating a control signal to move the servo, wherein the determining of the wobble signal comprises:

detecting the wobble signal from the two signals,
determining whether one of the tracks, which is currently tracked by the pickup, is a groove track or a land track based on the wobble signal, to generate a determination signal, and
generating the control signal based upon the wobble signal and the determination signal.

REMARKS

On July 2, 2002, the Examiner kindly granted the undersigned a personal interview to discuss the application. The Examiner's time in preparing for and conducting the interview is acknowledged and appreciated.

No new matter is being presented, and approval and entry are respectfully requested. If any issues remain, including questions regarding the Applicant's claimed structures, it is believed that prosecution can be expedited and possibly concluded by the Examiner contacting the undersigned for an interview to discuss any such remaining issues.

Claims 1, 7, 9, 11-14, 19, 20, 25, 33, 35, 37, 38, 45, 47 and 55 are pending and under consideration. Reconsideration is requested.

INTRODUCTION:

During the interview, the Examiner has acknowledged that "Applicant's representative pointed out the inventive features of the claimed invention and how it distinguishes over the prior art of record," (emphasis added, PTO-413-Interview Summary sheet) and further suggested amendments to the Applicant's claims that would place the Applicant's application into condition for allowance.

In accordance with the foregoing, claims 1, 9, 13, 19, 35, 38, and 45 have been amended as suggested by the Examiner during the July 2, 2002 interview to more clearly describe the present invention, and are now placed into condition for allowance.

That is, during the July 2, 2002 interview, Applicant pointed out the inventive features of the claimed invention and explained how it distinguishes over the prior art of record. At that time, the Examiner acknowledged that the claimed invention distinguishes over the prior art of record, but further requested amendment to more clearly describe the structure of the present invention.